FISHES COLLECTED BY THE VERNAY-HOPWOOD UPPER CHINDWIN EXPEDITION, 1935[1].

BY

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(*With one plate*).

The collection dealt with in this paper was received from two sources, but originally it had formed part of a much larger collection made by the Vernay-Hopwood Upper Chindwin Expedition. In June 1938, Mr. S. H. Prater sent to the Zoological Survey of India 42 specimens of fish which the Bombay Natural History Society had received as a presentation from the American Museum of Natural History. In August, 1938, Mr. J. T. Nichols of the American Museum of Natural History, on his own initiative, sent a small consignment of 50 fishes collected by Mr. H. C. Raven of the Vernay-Hopwood Chindwin Expedition. The latter lot comprised only such forms about the identification of which there were some doubts. The major part of the collection had, however, already been named and distributed on the shelves in the Museum. Of the specimens received from the Bombay Natural History Society there were some that had been collected by the Expedition in the Malay Peninsula, but we propose to deal here only with the specimens collected from the Chindwin drainage in Upper Burma. For precise data about the various localities from which the fish were obtained reference may be made to Morris's article in the *Journal of the Bombay Natural History Society* (vol. xxxviii, pp. 647-671, 1936) in which a general account of the Expedition is given.

We are given to understand that owing to unusual field difficulties of packing and transportation, the fish material could not be looked after properly and it is not surprising, therefore, that quite a number of specimens are in a poor state of preservation. However, it has been possible to identify all of them specifically.

In the following list species represented in the collection examined by us from the Upper Chindwin area are given; the localities in which the respective species were collected and their general distribution are also included.

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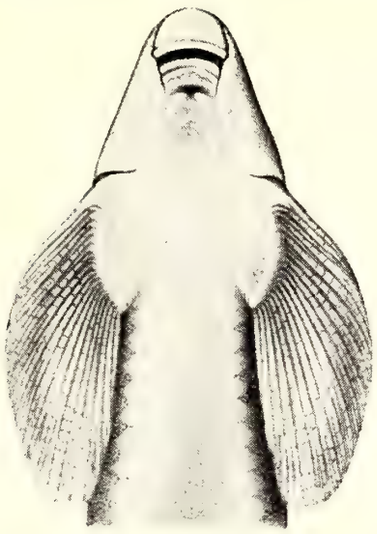

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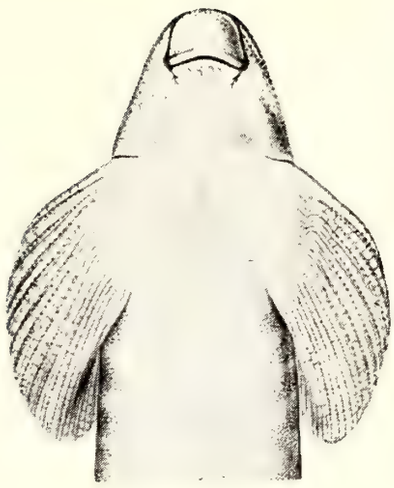

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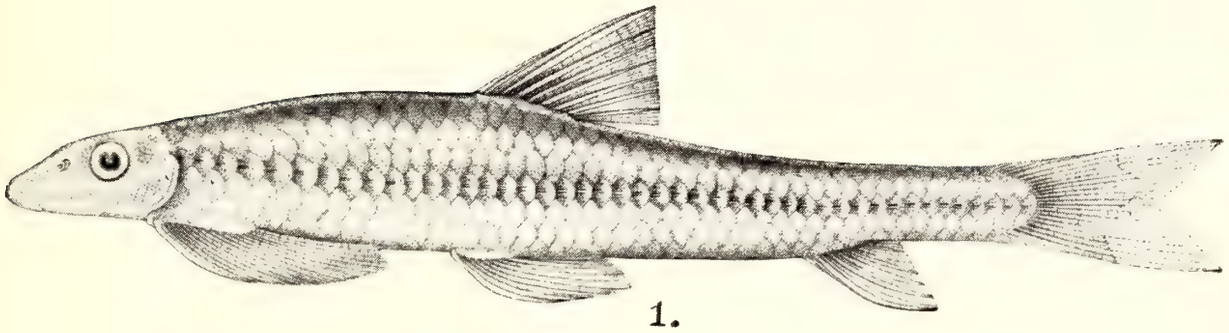

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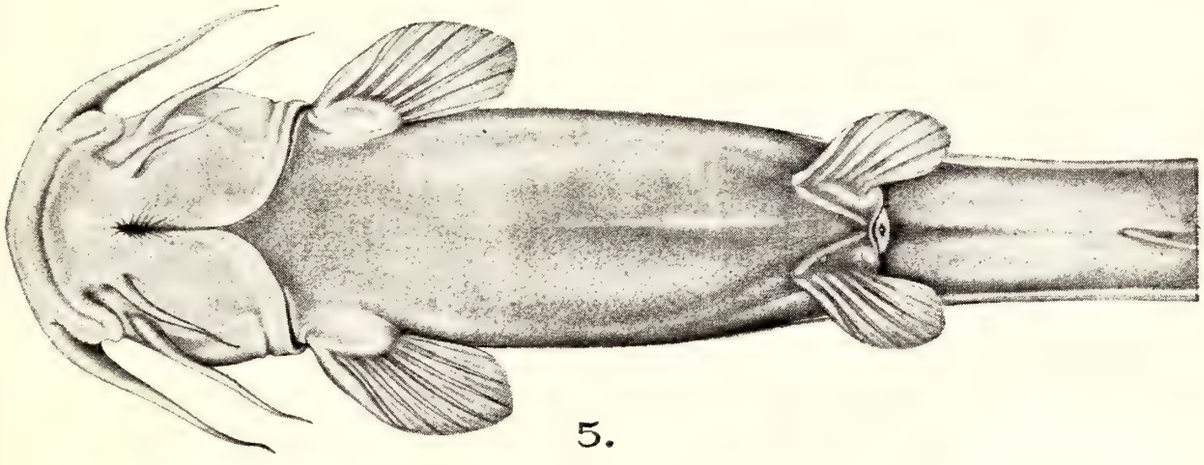

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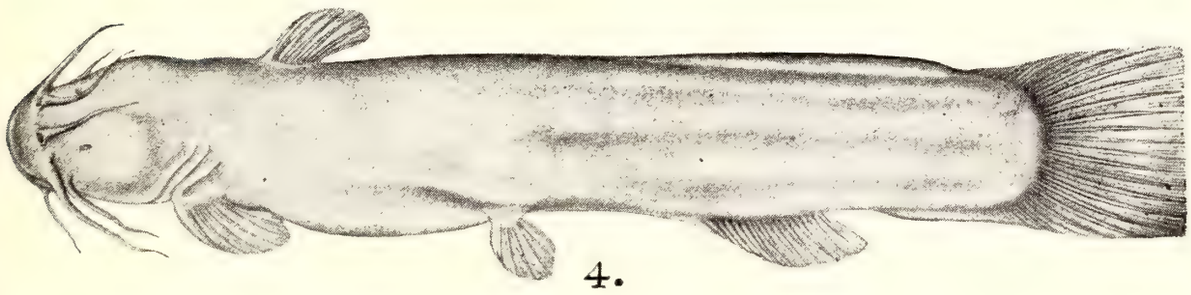

4.

Fishes collected by the Vernay-Hopwood Upper Chindwin Expedition, 1935.

For explanation see end of article.

List of Species.

Specific Name	Locality and number of specimens	Further Distribution
Family Flutidæ		
1. **Fluta alba** (Ziew).	Lonkhin : 5 specimens ...	Manipur, Assam ; Burma; Malay Peninsula and Archipelago, Siam to Northern China; Chinese islands; Formosa and Japan.
Family Mastacembelidæ		
2. **Mastacembelus unicolor** (K. & V. Hass.).	Mawlaik : 1 specimen ...	Burma to Java.
Family Cyprinidæ		
Subfamily *Rasborinæ*		
3. **Danio aequipinnatus** (McClelland).	Kora : 14 specimens ...	India, Burma and Siam.
4. **Rasbora rasbora** (Hamilton).	Dalu : 6 specimens ...	India, Burma and Pihang.
5. **Barilius barna** Hamilton	Upper Burma : 2 specimens ...	India and Burma.
Subfamily *Cyprininæ*		
6. **Barbus (Tor) mosal** (Hamilton).	Lonkhin : 1 specimen ...	India and Burma.
7. **Barbus (Puntius) sewelli** Prashad and Mukerji.	Dalu : 2 specimens ...	Myitkyina District, Upper Burma.
8. **Barbus (Puntius) ticto** Hamilton.	Dalu : 3 specimens ...	India, Burma, Ceylon and Siam.
9. **Labeo devdevi** Hora.	Dalu : 22 specimens ...	Chindwin Drainage, Assam ; Burma and Siam.
10. **Psilorhynchus homaloptera** var. **rowleyi**, nov.	Kora : 3 specimens ...	...
11. **Rohtee cotio** var **cunma** Day.	Kaunghein : 1 specimen.	Chindwin Drainage in Assam, Peninsular India and Burma.
12. **Rohtee feae** (Vinciguerra).	Kalawa : 3 specimens ...	Burma.
Family Cobitidæ		
13. **Acanthopsis choirorhynchus** (Blkr.).	Kaunghein : 2 specimens.	Sumatra, Java, Borneo, Malay Peninsula, Burma, Siam and Annam.
14. **Lepidocephalus berdmorei** (Blyth).	Dalu : 1 specimen ...	Chindwin Drainage in Assam, and Burma.
Family Ariidæ		
15. **Arius jatius** (Hamilton).	Kalewa : 1 specimen ...	Estuaries and rivers of Bengal and Burma.

Specific Name	Locality and number of specimens	Further Distribution
Family SILURIDÆ		
16. **Silurus cochinchinensis** Cuv. and Val.	Kaunghein : 1 specimen...	India, Burma, Malay Peninsula and Cochin China.
Family AMBLYCIPITIDÆ		
17. **Amblyceps mangois** (Hamilton).	Kora : 2 specimens ; Hai Bum : 4 specimens ...	India, Burma, Siam and Malay Peninsula.
Family SISORIDÆ		
18. **Exostoma vinciguerre** Regan.	Kora : 1 specimen ...	Upper Burma.
Family OPHICEPHALIDÆ		
19. **Ophicephalus gachua** Hamilton.	Kora : 3 specimens ...	Throughout the Oriental Region.
Family NANDIDÆ		
20. **Badis badis** (Hamilton).	Burma : 4 specimens ...	India and Burma.
Family AMBASSIDÆ		
21. **Ambassis baculis** (Hamilton).	Kaunghein : 2 specimens.	India, Burma and Siam.

Most of the species are widely distributed in parts of the Oriental Region and do not require any further comments. Some of the species, such as *Barbus* (*Tor*) *mosal* (Hamilton)[1], *Barbus* (*Puntius*) *ticto* Hamilton[2], *Barbus* (*Puntius*) *sewelli* Prashad and Mukerji[3] *Labeo devdevi* Hora[4], *Rohtee cotio* var. *cunma* Day[5], *Rohtee feae* (Vinciguerra)[5], *Silurus cochinchinensis* Cuvier &

[1] Hora, S. L.—'The Game Fishes of India. X. The Mahseers or the Large-scaled Barbels of India. 3. The Mosal Mahseer, *Barbus* (*Tor*) *mosal* (Hamilton)'. *Journ. Bombay Nat. Hist. Soc.*, vol. xli, pp. 784-794 (1940). The measurements of the specimen from Lonkhin are given on page 789.

[2] Hora, S. L., Misra, K. S. and Malik, G. M.—'A Study of Variations in *Barbus* (*Puntius*) *ticto* (Hamilton)'. *Rec. Ind. Mus.*, vol. xli, pp. 263-279 (1939). The measurements, scale-counts and position of colour spots of the specimens from Dalu are given on page 274.

[3] Prashad, B. and Mukerji, D. D.—'The Fish of the Indawgyi Lake and the streams of the Myitkyina District (Upper Burma)'. *Rec. Ind. Mus.* vol. xxxi, p. 197, pl. ix, figs. 1, 1*a*, 1*b* (1939). *B. sewelli* is represented in the collection by juvenile specimens.

[4] Hora, S. L.—'On a Further Collection of Fish from the Naga Hills'. *Rec. Ind. Mus.*, vol. xxxviii, pp. 323, 324 (1936); 'Notes on Fishes in the Indian Museum. xxxii. On a Small Collection of Fish from the Upper Chindwin Drainage'. *ibid.*, vol. xxxix, p. 333 (1937). In the collection under report, *Labeo devdevi* is represented by juvenile specimens.

[5] Hora, S. L. and Misra, K. S.—'Notes on Fishes in the Indian Museum. XL. On Fishes of the genus *Rohtee* Sykes'. *Rec. Ind. Mus.*, vol. xlii, pp. 155-172 (1940). Measurements, number of anal rays, and scale-counts of the Kaunghein specimen of *Rohtee cotio* var. *cunma* are given on page 170, while those of the two specimens of *R. feae* from Kalawa are given on page 158.

Valenciennes[1] and *Exostoma vinciguerra* Regan[2] have already been dealt with in recent years, while notes on *Psilorhynchus homaloptera* var. *rowleyi*, nov. and *Amblyceps mangois* (Hamilton) are given below. The occurrence of *Arius jatius* (Hamilton) in the Upper Chindwin Drainage is of special significance, for though the species is known to ascend far above tidal reach its record from such great distance from the sea is rather unusual. As pointed out by Hamilton[3] the palatine teeth are entirely absent.

Psilorhynchus homaloptera var. **rowleyi,** nov.

Plate I, figs. 1 and 2.

In 1935, Hora and Mukerji[4] described a new species of *Psilorhynchus, P. homaloptera,* from the Brahmaputra Drainage of the Naga Hills, Assam. Next year, Hora[5] recorded two more specimens of the same species from this region. In the collection under report, there are three specimens from Kora which are generally similar to *P. homaloptera* (Plate I, fig. 3), but the body is only slightly depressed, the caudal peduncle is more slender and narrow, the head is somewhat more pointed, the interorbital space is narrower and the eyes are proportionately larger. We believe that these specimens represent a distinct Burmese variety of the species which we have named after Major Rowley, a member of the Expedition.

The differences noted above between the typical form from India and the Burmese variety are of the same nature as pointed out by Hora[6] between *Balitora brucei* Gray from India and its variety *burmanica* Hora from Burma.

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[1] Hora, S. L.—'Siluroid Fishes of India, Burma and Ceylon. VII. Fishes of the genus *Silurus* Linnaeus'. *Rec. Ind. Mus.*, vol. xxxviii, pp. 351-56 (1936).

[2] Hora, S. L.—'Notes on Fishes in the Indian Museum. V. On the composite Genus *Glyptosternum* McClelland' *Rec. Ind. Mus.*, vol. xxv, p. 41, pl. iii, figs. 1-3 (1923).

Now that the generic limits of *Glyptosternum* McClelland have become sufficiently defined, we recognise the divisions into which this composite genus has been divided by Regan, Norman and Smith (*Journ. Siam Soc. Nat. Hist. Suppl.*, ix, p. 71, 1933). The generic appellation *Exostoma* Blyth is, however, inappropriate, for, as shown by Hora (*loc. cit.*, p. 3), its type-species belongs to *Glyptothorax* Blyth. Till fresh specimens of *E. berdmorei* Blyth become available, we do not wish to disturb the present nomenclatorial arrangement and have accordingly adopted the generic name *Exostoma* for *E. labiatus* Blyth and allied forms.

[3] Hamilton, F.—'*An Account of the Fishes found in the River Ganges and its tributary branches,*' pp. 171, 376 (Edinburgh, 1822).

[4] Hora, S. L. and Mukerji, D. D.—'Fish of the Naga Hills, Assam'. *Rec. Ind. Mus.*, vol. xxxvii, pp. 391-397, pl. vii, figs. 1-6 (1935).

[5] Hora, S. L.—'On a Further Collection of Fish from the Naga Hills'. *Rec. Ind. Mus.*, vol. xxxviii, p. 318 (1936).

[6] Hora, S. L.—'Classification, Bionomics and Evolution of Homalopterid Fishes'. *Mem. Ind. Mus.*, vol. xii, p. 291, pl. xi, fig. 6 (1932).

Measurements in millimetres.

Standard length	61·5	75·0
Length of head	12·0	14·0
Height of head	7·0	9·0
Width of head	10·0	11·0
Diameter of eye	4·0	4·5
Length of snout	5·0	6·3
Interorbital distance	4·9	5·6
Depth of body	9·5	12·0
Width of body	9·5	12·0
Length of caudal peduncle .	10·5	11·0
Least height of caudal peduncle ...	4·5	5·5

Amblyceps mangois (Hamilton).

Plate I, figs. 4 and 5.

1933. *Amblyceps mangois*, Hora, *Rec. Ind. Mus.*, xxxv, pp. 607-621.

The specimens of *Amblyceps mangois* from Hai Bum are the largest yet recorded, the largest specimen being 163 mm. in total length. In these examples the head and the body are covered with a felt-like growth of papillae. The lips are also thickly papillated. The eyes are very minute, almost indistinguishable, and the caudal fin is truncate. The adipose fin is thick and low, and just forms a ridge.

Owing to their strong build, these specimens are liable to be confused with *Liobagrus* Hilgendorf, but can be readily distinguished on account of the respiratory structures associated with the gill-openings (*vide* Hora, *loc. cit.*, p. 612). The larger examples are superficially not dissimilar to *Glyptosternum* McClelland (=*Parexostoma* Regan), but the extent of the gill-openings, and the position and form of the various fins are sufficient to distinguish the two types of fishes.

The pelvic fins are close together on the ventral surface and are provided with muscular bases. Some of the specimens are heavily parasitised by worms which are encysted in the body wall and on the fins.

In recent years the range of distribution of *A. mangois* has been greatly extended. It is found in the Malay Peninsula, Burma, Siam, Assam Hills, Himalayas, Rajmahal Hills, Santal Parganas and the headwaters of the Mahanadi River.

Explanation of Plate

Fig. 1.—Lateral view of the type-specimen of *Psilorhynchus homaloptera* var. *rowleyi*, nov. × $1\frac{2}{3}$.

Fig. 2.—Ventral surface of head and anterior part of body of the same. × $1\frac{2}{3}$.

Fig. 3.—Ventral surface of head and anterior part of body of *Psilorhynchus homaloptera* Hora & Mukerji. × $1\frac{2}{3}$.

Fig. 4.—Dorso-lateral view of a specimen of *Amblyceps mangois* (Hamilton) from Hai Bum. × 5/6.

Fig. 5.—Ventral surface of head and part of body of the same. × *ca* $1\frac{1}{2}$.